Message

From: Wilcut, Lars [Wilcut.Lars@epa.gov]
Sent: 5/13/2020 2:27:06 PM
To: Fleisig, Erica [Fleisig.Erica@epa.gov]; Sengco, Mario [Sengco.Mario@epa.gov]
Subject: RE: Question from ND re: Ammonia Standard

Given what I understand North Dakota is looking to do, I recommend they put these equations into their WQS:

- For CMC, both the mussels/*Oncorhynchus*-present equation they already have in there, and also the *Oncorhynchus*-absent equation on page 42. Note the equation is missing brackets (corrected version below:

$$CMC = 0.7249 \times \left(\frac{0.0114}{1 + 10^{7.204 - pH}} + \frac{1.6181}{1 + 10^{pH - 7.204}} \right) \times MIN\left(51.93, 23.12 \times 10^{0.036 \times (20 - T)}\right)$$

- For CCC, the only driver is mussels, so it's a matter of determining the presence/absence of mussels. Given that the state determined they are ubiquitous I'm assuming they don't want to bother with any additional equations here. If they do, Appendix N of the criteria document has the applicable equations.
- In my earlier email I said that the issue is rainbow trout, but it's actually all the species in the genus *Oncorhynchus*.
- As an alternative to the equations, or as a supplement to them, the state could adopt the applicable tables (Tables 5a, 5b, 6) showing the criteria magnitude values from given pH and temperatures.
- It would lessen the chance of litigation, promote transparency, and ensure regulatory certainty to clearly describe the circumstances that would determine which equation is used in any given situation. That could include any required interaction with the state authority making decisions, the level and type of information expected, etc. We have two internal documents that may be helpful to Holly: one describes potential ammonia criteria approaches, including what information we would expect to accompany the submission; the other is a decision tree to help regional staff understand when to choose the various equations.

From: Fleisig, Erica <Fleisig.Erica@epa.gov>
Sent: Wednesday, May 13, 2020 9:21 AM
To: Sengco, Mario <Sengco.Mario@epa.gov>; Wilcut, Lars <Wilcut.Lars@epa.gov>
Subject: RE: Question from ND re: Ammonia Standard

What does this mean? That ND is adopting the criteria statewide despite these challenges? Or that they aren't going to adopt as a result? I'm finding it a little hard to follow, sorry.

From: Sengco, Mario <Sengco.Mario@epa.gov>
Sent: Wednesday, May 13, 2020 9:15 AM
To: Fleisig, Erica <Fleisig.Erica@epa.gov>; Wilcut, Lars <Wilcut.Lars@epa.gov>
Subject: FW: Question from ND re: Ammonia Standard

Hi,

Some feedback from Peter through Holly on what we sent. His account of the challenges that small communities would face with more stringent ammonia criteria was pretty stark. This account might be good to save and share during one of the small communities meeting. Probably not unique, but hearing it from the state official directly makes it pretty compelling.

Mario

From: Wirick, Holiday <wirick.holiday@epa.gov>
Sent: Tuesday, May 12, 2020 7:38 PM
To: Sengco, Mario <Sengco.Mario@epa.gov>
Subject: Re: Question from ND re: Ammonia Standard

Hi Mario, holy moly I got the following response from Pete Wax from ND DEQ. He also left me a voicemail message which I'll transcribe at the end of this message.

Total Ammonia as nitrogen/L good enough.

We have no rainbow trout outside of the Missouri River and our only Oncorhynchus are Cisco again in the Missouri river. We have good fish data.

I tested recalculations. A fairly number of them. Bluegill and Green Sunfish are statewide. Using blue or green sunnies the criteria is more stringent than the 2013 recommendation.

My desire is to have (in Table 1) populated with the correct equations for the permit writers. They need to make the correct decision(s) and have the greatest flexibility as possible when writing permits.

Example. Permit writer uses Equation "X" for All Streams if Mussels are present. Equation "XX2" if Trout/Cisco & Unionids are present.

All options that may be applied to the permit (not sure about this) to allow for the greatest flexibility are XXX3 if pH of 7 or temps at or below 7.

Site specific criteria is an option but does not need to address now.

Note that ND is not walking into this blindly. The numbers have been run for every discharger in the state. Run with different discharge timing (season and duration). Run with different class streams (thought about a phased in process). Run with larger and smaller discharge rates. The results are clear, compliance will be painful. There are no good options for the average town. The average municipal discharger in ND has a simple 45-year old lagoon system. It serves a town of 200-1500 people. The town has maxed out its bonding. The citizenry has a median age of 60 plus with zero disposable income. Improvements to these systems or improved operation is not a reality (no money and no technical ability). The options presented over the last 8 years are simply not realistic. They make me want to cry. My fear is we will force some of these communities to disassemble. The ripple would be devastating. They would lose their ability to govern themselves. They would lose their law enforcement, ambulance service, schools, health districts, and

landfills. Yet another bombshell of unintended consequences resulting from good intentions. It is nothing to a large community but a near lethal beating to the small ones. The irony is, small communities contribute less from their lagoons then a large community does from its unpermitted storm water.

Pete also left me a voice mail message. He said he didn't find doing the mathematical calculations for ammonia - when looking at different site-specific criteria - to be very difficult. He just didn't see any improvement in it. The data set is pretty small for green sunfish and blue gill which are pretty ubiquitous even in streams where he doesn't believe they have mussels - and they're such a small data set that you actually end up with a more stringent criterion than if you used mussels - so he just used mussels.

Anyway, thanks so much to you, Lars and Erica for working with me on my first ammonia rodeo.

Have a nice evening,

Holly

From: Sengco, Mario <Sengco.Mario@epa.gov>
Sent: Tuesday, May 12, 2020 10:01 AM
To: Wirick, Holiday <wirick.holiday@epa.gov>
Subject: FW: Question from ND re: Ammonia Standard

Hi Holly

Here is some feedback from Lars.

Mario

From: Wilcut, Lars <Wilcut.Lars@epa.gov>
Sent: Tuesday, May 12, 2020 10:58 AM
To: Fleisig, Erica <Fleisig.Erica@epa.gov>
Cc: Sengco, Mario <Sengco.Mario@epa.gov>
Subject: RE: Question from ND re: Ammonia Standard

The equations themselves look right. A couple points to pass on to Holly:

- The criteria are expressed as mg of total ammonia nitrogen/L (TAN/L), not N/L
- The key vertebrate in the 2013 criteria is *Oncorhynchus*, not salmonids in general. The other salmonids in the criteria database are surrogates for other fish species that are likely to be present in fresh waters. If there aren't rainbow trout in North Dakota, the state could use the recalculation procedure to remove them. Has the state done that before for any other criteria?

We stand ready to support North Dakota and Region 8 in their effort to revise ammonia criteria!

Lars